

Irina Attias

How companies evaluate their offshore outsourcing activities?

A study of the challenges and opportunities associated with outsourcing to different countries

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<p>Companies outsource their manufacturing for cutting costs and to be able to concentrate on their core competences. Offshore outsourcing reached its peak less than 10 years ago but nevertheless today's literature has started to argue whether offshoring brings true long-term profits for companies that practice it.</p> <p>Whereas many multinational enterprises work on bringing their production back to their home countries, small and microenterprises seem to have only the option of offshore outsourcing. This is due to high costs and large minimum order quantities among other things. In Finland, half of all companies with less than 100 employees outsource their production to other markets: new EU member states in Eastern Europe and Asia.</p> <p>Supplier selection and outsourcing are strategic decisions and therefore should be linked to the procurement strategy and to the company strategy. These decisions affect the whole organisation, which is why PESTLE factors such as the legal, geographical, cultural and infrastructural factors bring various advantages and challenges.</p> <p>Whereas Taiwanese manufacturers offer experience, flexibility and low price production, especially in the electronics sector, EU countries offer consistency of quality and reliability on lead times. As global sourcing involves a variety of benefits, it will likely continue to be a popular method in the manufacturing industry. Therefore, it is essential to establish a neutral method of evaluation for the suppliers around the globe. Transforming qualitative data into more easily workable form is the main outcome of the research that is demonstrated by different examples from Taiwan, Estonia, UK and the Netherlands.</p>	
Keywords	Supply Chain Management, offshoring, outsourcing, logistics optimisation

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1 Introduction

This study concentrates on the offshore outsourcing activities of micro and small enterprises. Off-shoring can be defined as transferring companies' activities to a foreign country (usually in low cost countries, or LCC's) whereas outsourcing means contracting the selected activities to an external organisation. Offshore outsourcing (OO) at its best allows companies to grow their profit margins by cutting costs while concentrating on their core businesses. However, global outsourcing has significant potential to increase the complexity of simple operations because the control shifts to the supplier or service producer. This study intends to find out what are the opportunities and challenges for small and microenterprises* in different countries as microenterprises are more vulnerable in their supply chains. This is because they are more likely to have less negotiation power in addition to smaller production batches, which makes them less important customers to their suppliers.

Furthermore this study also focuses mainly on outsourcing of manufacturing operations because the product requirements, qualitative characteristics and raw material usage are more tangible and therefore easier to measure. Rather than concentrating on simple outsourcing where companies source services without too many specifications, the study will concentrate on companies that are using OEMs. OEMs are companies that offer manufacturing according to the client's customised requirements. Relations with these contract manufacturers will be researched with long-term relations in mind as small and microenterprises become more vulnerable when changing suppliers. Searching continually for new suppliers is also a time consuming activity which also reduces the cost effectiveness which is why it is avoided if possible. This highlights the importance of finding long-term partners.

Outsourcing decisions are often categorised to be made on the basis of price competition, quality improvement or by the type of the desired relationship. This study does not consider price competition as a primary influence to strategic sourcing decision as the prices are rarely fixed in the long-run. For instance the price evolution in South China has started to increase strongly during the last 5 years. The continuity of supply with expected quality, development and co-development of existing products and processes will bring long-term savings which is why they are seen as primary influencers for the sourcing strategy.

1.1 Goal of the Study

The idea of the study arose from the Sourcing classes, related to Metropolia's business studies in the partner school in ESC Rennes. Especially a class-discussion about Hillary Clinton's article in The Wall Street Journal (Appendix 2, see references for the original article) inspired me to look into the topic more in detail. Therefore the study will also serve my personal interest on choosing suppliers for outsourcing activities and consequently is a problem-centred study.

The purpose of the study is to identify the most important factors that affect the choice of manufacturing country, suppliers and OEMs in Finnish small and microenterprises selling physical products. Moreover the recommendations part will aim to provide a method that eases the rating of the opportunities and challenges when reflecting on a concrete country choice in a small or microenterprise's supply chain*.

1.2 Methodology

This study is based on existing research and data because due to secrecy and protective reasons, it is hard to receive sufficiently extensive responses from small and microenterprises. Put differently, the supplier choice is part of the strategy and therefore sensitive data. To compensate for the lack of primary data, the comparative study discusses different factors that may affect the success of the potential partnerships. Those factors include political and cultural issues besides the actual trade and business factors.

Terminology for certain terms is provided in appendixes (Appendix 1). Terms that can be found in the terminology are marked with an asterisk (*). That terminology aims to help the reader to understand different nuances of the topic more deeply.

1.3 The assumptions and limitations of the Study

The research topic is extensive which means that a bachelor thesis won't have sufficient scope to cover all related topics. Because of that, the study will concentrate on the electronics industry. Therefore the study presents also the most common offshore manufacturing locations for Finnish electronics SMEs. The choice of these locations are rationalised first in the section 2.6 and later presented fully in section 3.

The study also standardises the practiced logistics philosophy as it may affect the method of sourcing significantly. As the emphasis is on micro and small enterprises, it is assumed that the capital investment on stock is aimed to be kept in minimum which equals to rather small inventory levels or in turn strong partnerships with special payment arrangements. The scope of the study limits processing widely other topics such as the increasing demand on the transparency of supply chains. Also long term contracts may also contain a clause of the supplier's price development besides overall performance development which is acknowledged as a motivation for a partnership but else ignored.

2 Literature Review

This section discusses basic theories and concepts concerning outsourcing in general. In order to understand the whole process, the chapter will start with the development of offshore outsourcing before describing the current situation and the sourcing process.

2.1 The evolution of offshore outsourcing

The evolution of offshore outsourcing (OO) helps to understand why companies source globally and started to outsource. OO brings the opportunity to source globally which brings the opportunity for low-cost manufacturing according to Schuh et al., 2008. On the other hand, it also enables finding the best suppliers and partners as the pool of opportunities grow. (Schuh, et al., 2009) Welch and Nayak, in turn, identified reasons for the spread of outsourcing as a common business practise which happened in the shift of the 50's and the 60's. Besides benefiting from the use of workers with lower wages and gaining access to the suppliers' innovation, Welch et al. brought up converting the fixed costs to variable costs, shortening the lead-times and concentrating on the core competencies. (Welch, et al., 1992)

Moreover, containerisation* together with fast-developing technology boosted globalisation and the liberalisation of the international trade which became an important driver of the outsourcing trend. As international trade became more common, offshore outsourcing became more common since it gave access to the world's best capabilities, products and prices. As a criticism to that, the failure of many companies' outsourcing attempts is due to too large a focus on lower prices and therefore in the image of reduced costs. Therefore the time required for sufficient supplier relations management (SRM) is easily ignored. As the impact of SRM grows when operating in new cultures some risks become more likely in case of poor SRM.

When Just-in-Time (JIT)* and lean manufacture* philosophies spread, outsourcing of customised products and diversified product lines became easier. JIT and lean production helped to shorten lead-times and to control costs derived from customisation activities. Outsourcing enables the completion of tasks simultaneously which brings the opportunity of shortening lead times*. (See Figures 1 and 2)

Figure 2 describes a traditional company that is responsible for sourcing raw materials itself. The company is also responsible for manufacturing and the assembly and warehousing of the product which means that it has the full risk during all stages of production.

Figure 1: Supply chain of a manufacturing company

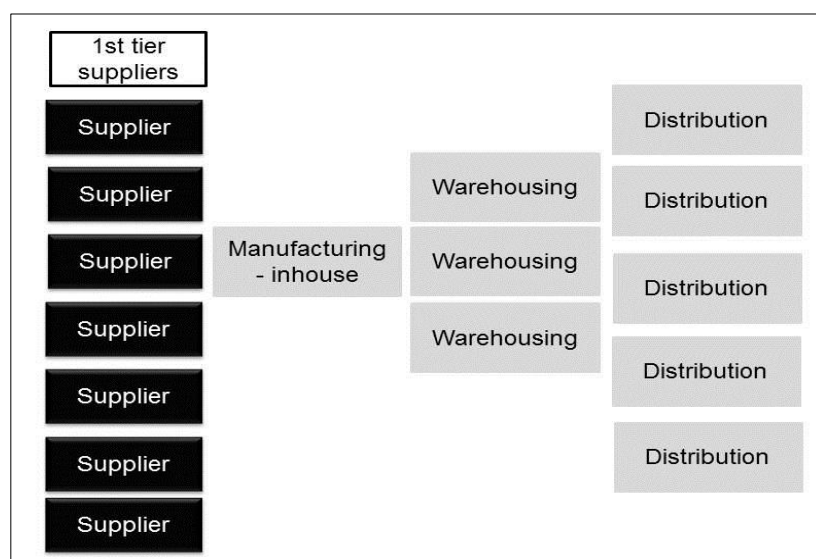


Figure 2: Supply chain of a company that outsources its production

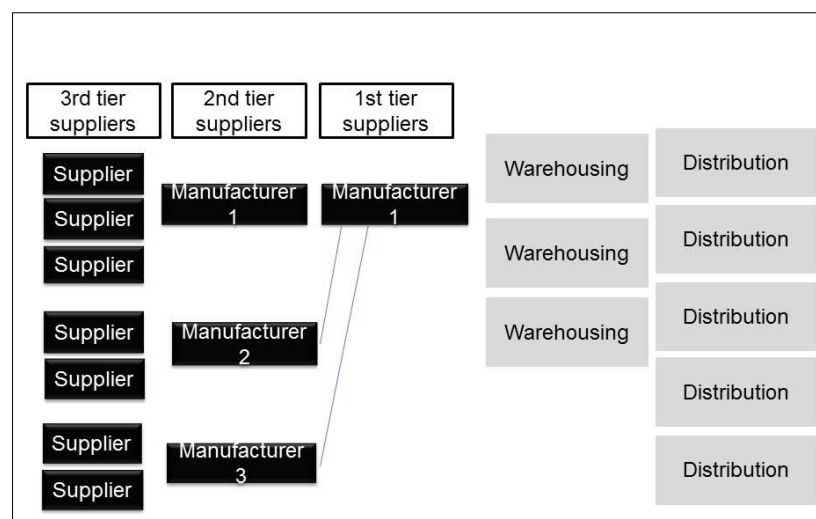


Figure 1 illustrates a company that has split the risk with its manufacturers who are responsible for sourcing the required raw materials and manufacturing. Now the risk is mainly in the security of supply and bottleneck producers*.

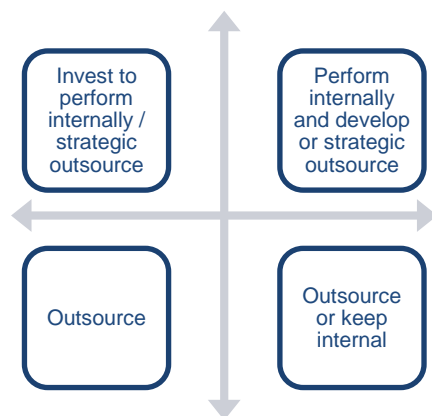
Depending on the level of outsourcing the company may take charge of the products in the assembly, warehousing, distribution or only be a silent coordinator of the flow of products by determining the production volumes at each time.

In addition, it is also easier to control the inventory levels if even parts of the production are outsourced. The reason for that is that the company only needs to forecast the sales of the finished product instead of having to forecast the volumes of all raw materials and components including naturally also spare parts etc. The flip side of the coin is that while this eases the company's forecasting the impact of the bullwhip effect* grows in the supply chain which may affect the security of supply.

All in all, while companies aim to reduce costs, lead-times and workforce when outsourcing, it also equals more to taking the full advantage of the most suitable suppliers and manufacturers. Acknowledgement of the benefits and challenges of outsourcing through the history of it allows us to accept the concept as it is. Therefore it has become a common business practice that supports the company strategy. The next chapter: make or buy, will discuss how companies decide to use outsourcing strategy.

2.2 Make or buy?

Make or buy decision is about whether to manufacture a product in-house or to purchase it from another company.



Naturally the company has to consider both, the cost and the scope of available manufacturing capacity. The figure 4 illustrates the outsourcing decision by Vagadia. He structures the outsourcing decision into a two axis matrix in which the vertical one represents the importance of the activity in regards to the competitive advantage. The horizontal axis represents the company's ability of completing those activities by itself. (Vagadia, 2012)

Figure 3: Strategic sourcing decisions according to Vagadia (Vagadia, 2012)

In the electronics industry the main emphasis is on the engineering and the brand of the product. Regarding electronics that require high technology, the production and design may be very close to each other. These kinds of companies are then likely to be in the up-right corner of Vagadia's matrix as the sourced activity is a core competence and the company has the knowhow. Micro and small enterprises are not likely of being able to keep the production internal due to the high investment related to it. This is why they plausibly are looking for strategic partnerships that work in close cooperation. The next chapter describes what the options for companies that consider outsourcing are.

2.3 Subcategories of offshore outsourcing

As discussed in the previous chapters, the potential choice for suppliers and manufacturers is large. This section identifies how OO is categorised and what are the options for companies. The table below presents examples and the main characteristics of the terms according to Schuh et al. in The Purchasing Chessboard.

	BEST SHORING: LOCATING COMPANIES' PROCESSES IN REGIONS WITH BEST BALANCE OF COST AND EFFICIENCY FACTORS.		
	On shoring	Near shoring	Offshoring
Location	Home region or short distance from home	Near geographically and culturally	Geographically distant
Cost structure	Similar to home circumstances	Significantly lower prices than at home	Significantly lower prices than at home
Country example in the study	The Netherlands, UK	Estonia	Taiwan

Table 1: Best Shoring - definition and subcategories, Source: (Schuh, et al., 2009)

The concepts discussed in this table should be kept in mind as the rest of the study uses these terms as they are presented here. I have decided to have examples from each types of outsourcing that are presented above. This is because all of these options have their own strengths and weaknesses that have different significance for different companies.

2.4 Current trends

After dealing with the general theory of OO and before going on to the actual sourcing process, this and the next section (2.6) discusses the current situation along with the current trends and the influencing factors.

The manufacture of electronics has traditionally been offshored to South China, Korea, Taiwan and Hong Kong. The roots are indisputably in the history of colonialism which is why the infrastructure often supports offshoring and international trade. Nonetheless the publication Supply Chain Asia communicates that China's growth in manufacturing has slowed down due to rising salaries and the strong currency. The magazine also identifies some other problems for manufacturing in Asia, e.g. high bureaucracy and corruption, poor infrastructure and great risks of natural disasters. (Manufacturing in China Loses Steam, 2013)

It seems that the rising prices in emerging markets affect offshore outsourcing so that an opposite movement has started. Rick Blasgen, the president and CEO of the Council of Supply Chain Management Professionals discussed in the Logistics Seminar of Helsinki (02/2014) the future trends of SCM. He listed increasing near shoring (that is discussed as onshoring in this study, see 2.4 section) to be on top five trends of SCM. He also revealed that in just a couple of years multinational enterprises (MNEs) e.g. Apple, Lenovo, Caterpillar have moved part of the production back to their home countries which we relate as on shoring in this work. (Material accessible through LOGY: http://logy.multiedition.fi/www/extra/seminaarit/Logistiikkaseminaari2014/Esitykset/Blasgen_Rick.pdf [April 20th, 2014].

2.5 Offshore Outsourcing in Finnish Companies

In Finland nearly half of the outsourcing companies outsource to the new EU countries (near shoring) because of the common rules and reduced limitations and customs after a study made by Samuli Rikama from the Finnish Statistics. Another important destination is Asia, more precisely China and India (offshoring). Approximately 25% of the outsourcing companies choose Asia (~20% to China, ~5% to India). (Rikama, 2008)

The future trends of outsourcing destinations will depend on such geopolitical issues as the future of Turkey as a potential EU member and the development of the infrastructure of Caucasus and especially Kazakhstan. Kazakhstan was considered to be a crucial future player of logistics field in the trade between Asia and the western world in several seminars of Shenzhen Logistics Fair (Oct. 14-16, 2013) that the author attended. (CILF, 2013)

Furthermore Rikama explains that in Finland offshore outsourcing is concentrated on manufacturing rather than services. According to his study nearly 70% of the offshore outsourcing companies contract out their manufacture which is why this type of outsourcing is the major focus of the study. (Rikama, 2008)

Figure 1 show how the size of the company, seems to determine what kind of offshoring companies practice according to a study made by the Finnish statistics. The study reveals that half of the Finnish companies, with less than 100 employees; have offshored part of their activities to external

companies. For Finnish companies with more than 100 employees the

rate is under 40% which can be explained with the rate of companies that have foreign subsidiaries and therefore offshored but not outsourced operations. (Rikama, 2008)

A simple explanation to such pattern is that companies with less than 100 employees will rather attempt to mitigate the risk of investing to subsidised facilities and rather only source from Low cost countries (LCCs).

Rikamas's study provides the basic assumptions for the study which means that the assumed offshore countries are assumed to be in Estonia and Taiwan. In order to find out why most of the offshoring happens in those countries, the comparative study takes into account the Western European countries, UK and the Netherlands. The purpose is to find out where the true competitiveness lies. Before that the literature review will still look into the factors that cause failure and success in OO attempts and how the actual sourcing process happens in outsourcing.

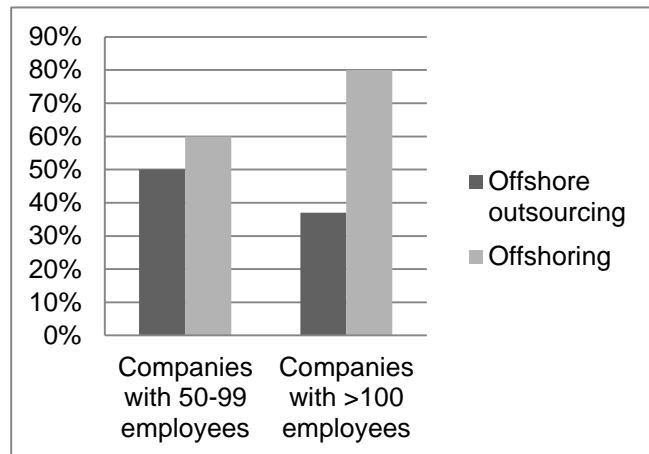


Figure 4: Offshoring activities in relation to the size of the company

2.6 Success and failure in offshore outsourcing

Various factors influence the reasons of failed outsourcing attempts. Emerald Group is a publishing company for academic journals and it summarised well these failure factors in its publication: Strategic direction. Those factors were poor identification of core competencies, failure in risk evaluation and choice of location and supplier. One core reason related to the last point is that companies choose suppliers that do not have sufficient knowledge about the product and market. (Strategic Direction, 2006) This is possible when the purchasing company has too much focus on lowering the price which results sacrificing other requirements.

The listed factors can be divided in two groups: the strategic decisions that should be dealt with at the top-management level and decisions that are related solely to the purchasing department. Therefore, in order to make a successful outsourcing attempt, companies need to link the purchasing strategy in their company's management strategies. The significance transpires in defining quantitatively and qualitatively how much resources can be invested in the outsourcing project. When the strategic and purchasing related decisions are considered fully the attempt is more likely to succeed so that the company and its strategic partner will secure each other in the long-term by committing themselves for continuing self-development.

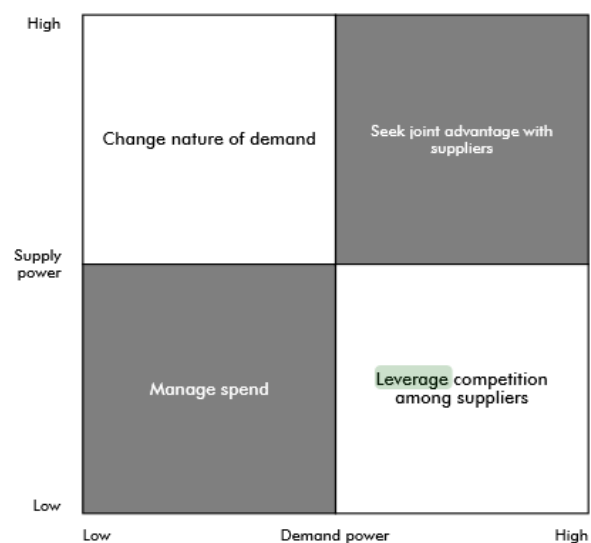
Sourcing strategy theory itself, concentrates on two main strategies: push and pull strategy. Pull strategy means that the demand pulls the production. A highlighted example of pull strategy in production is ship-building industry in which the production is started only after the order is made. The production is started only when demand occurs. Push strategy is the traditional production strategy that was used during industrialisation. Push strategy is manufacturing to sell which means that production is implemented through a plan or forecasting. (Gleissner;ym., 2012 s. 24) These two strategies are also used together which means that companies re-order more stock when the inventory reaches a certain level. Such anticipative strategy allows companies to avoid stock-outs and costly large stock levels.

The failure factors implicated to the rising prices of fuel the on-shoring and near-shoring options cannot be ignored. Politicians are also starting to be interested from this trend which showed in Hillary Clinton's article already in 2004 in the Wall Street Journal. (Clinton, 2004) Mrs Clinton ponders the tools which could possibly encourage companies to stay easier 'at home' which is important in maintaining the jobs local in my opinion also. Even though the opportunity of state support for retaining manufacture in the home country is attempting, this study has to ignore that option. That is because of the constraints set by the maximum scope of the research and the time limitations.

2.7 Sourcing Process

The sourcing strategy of each company depends on different characteristics of the sourced activity. For instance the level of needed technology determines the sourcing strategy as it is likely that it is hard to find sufficiently qualified manufacturers. The matrix below shows how the relation of the supply and demand power specifies the sourcing strategy. Companies should start their outsourcing attempts defining their sourcing strategy before starting the actual sourcing process (described below).

Table 2: Sourcing Strategy matrix,
Source: (Schuh, et al., 2009 p. 221)



The more differentiated the sourced product is, the greater the supply power is which means that less suppliers are available and there is less bargain for the prices. A small or micro sized electronics company would be located in the high-high square which means that there are a lot of suppliers for the sector which equals to more negotiation power for the buyer.

Another component is naturally the level of technology which narrows the choice of competent suppliers which will have the reverse effect to the negotiation power as discussed before.

Furthermore the company should evaluate the importance of the sourced product categories through a simple ABC analysis that is made on the basis on the price of the sourced item. The idea of the ABC analysis is that items with different importance are treated differently which collaborates well with the idea of the sourcing strategy matrix. Even though the two tools are not directly related to each other the chosen sourcing strategy may be heavily influenced by the position of an item in ABC analysis. Usually the suppliers of more expensive items will gain more attention than the items that can be purchased from catalogues. (Business Dictionary: <http://www.businessdictionary.com/definition/ABC-analysis.html> [03/04/2014])

In order to fully understand the success of the outsourcing process this section describes the sourcing process by assessing its requirements and most common risks. The article of Supply Management website describes a successful strategic sourcing process which is used as an influence to the analysis of offshore outsourcing process and its risks. (Management, 2011)

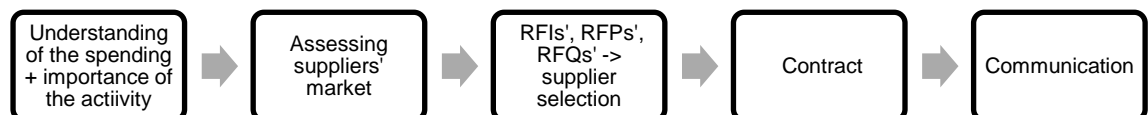


Table 3: Sourcing process – 5 stages influenced by Supply Management’s article. (Supply Management, 2011)

2.7.1 Steps

When a company identifies the critical characteristics the rest of the sourcing process will get easier. According to the same article as above, the knowledge comprises:

- Awareness of quality requirements: attributes of the manufacturing facilities, specifications of acceptable raw materials, durability of used components etc.
- Historic order volumes and forecasts of future demand: How large scope the new supplier has to be able to handle?
- Identified spend categories of sourced components or manufacture. The Purchasing Chessboard presents a strategic purchasing model where sourcing

can be categorised according to the relation of supply and demand power. Method of purchasing and relationships to the suppliers are decided in the basis of that categorisation. (Schuh, et al., 2009)

- Which processes or components are flexible for change? E.g. the supplier has alternative methods which could boost the processes.

When completing this stage, the most relevant risk is inadequate information of the sourced activity. To avoid this risk, information should be acquired from the entire organisation i.e. product development, sales, finances. Information retrieved from all departments will ensure that the interests of the whole organisation are included and therefore the corporate strategy better implemented.

In the next step, the necessity of recognising how much cash can be spent on the outsourced activity may influence greatly the choice of the geographic sourcing location. Obviously it depends on the sourcing strategy of the company what costs are included in the sourcing budget but to know the real price of outsourcing should contain information about the changes in costs from logistics, customs, work hours coordinating the relationships etc. besides the actual product price and the payment terms. The data, collected in the first step, helps to identify the special needs of the company which helps to scan the most optimal regions for the manufacture of a certain good or component. For instance Taiwan is traditionally well known as a manufacturing location of electronics.

When looking for new suppliers in a new geographic location, the company should aspire to obtain a sufficient market intelligence base as to Belli et al. (Payne;ym., 2011) By market intelligence it is meant the awareness of the trends, regulations, business practices and culture of the new potential supplier. As a personal example from this context, a Filipino supplier, whose company I was tendering in a particular project, explained me that if I do not want to be involved with corruption, I have to double my lead times.

Sollish and Semanik list the Sourcing challenges in communication and body language problems or the associated technology besides the way of conducting negotiations, time concept and the ownership of intellectual property. (Sollish;ym., 2010) Whereas the communication related issues are easier to study, I think the way of conducting

negotiations together with the time aspect may cause irritation and conflicts. In this context the time concept is dealt in immoderate delays in lead-times. These challenges should be considered as risks as they may bring distrust and disrespect along.

The general economic situation of the supplier's market should also be considered as it may affect the supplier's behaviour and attitudes i.e. from investment perspective. The more unstable the economy is the less willing the supplier may be to invest in development or to have fixed prices for long term. Moreover, ensuring that the suppliers' financial stability is adequate in order to survive the financial fluctuations will assure the supply and a stable price level. The comparative study will discuss different issues related to the location with more measurable means.

2.7.2 Requests for information, rating and selecting

Final supplier selection and the preparing tasks i.e. sending request for information (RFIs) and quotation (RFQ) may take a very long time depending naturally on the complexity of the sourced activity and therefore on how many suppliers are able to complete the work for the company. These stages are essential as it is important for the company to remain unbiased in its decisions. This includes also the notion of the purchasers committing to the common vision. Rating the negotiated and agreed factors helps making unbiased decisions. Sending out request for information is about finding and mapping new suppliers. Once a sufficient amount of companies responses to those requests, the sourcing company can analyse the answers. Once the answers are analysed the company decides which suppliers are still potential for cooperation. Following the sourcing company will send the requests for quotation and perhaps also more specified questionnaires.

FACTOR	SUPPLIER 1	SUPPLIER 2	SUPPLIER 3	PRIORITY OF BUYER
Price (\$)/ piece	9	12	10	1
Style	3 different models	5 different models	1 model	4
Payment (days)	30	15	30	3
Payment with buyers currency	No	Yes	No	5
After sales service	Yes	No	No	2

Table 4: Evaluation of information received in RFQ's

The purpose of a RFI is to seek for potential suppliers and to provide information of their manufacturing circumstances and ability to complete the needed work. Once the most potential suppliers are chosen for continuation, requests for more detailed information and quotes are sent. Once all data is received the purchasing company has to build its own evaluation criteria that is usually rating and weighing the received answers according to SupplierSelect article. (SupplierSelect, 2014) See example table left.

As seen in the table the buyer's priority may affect largely the choice made. For instance the supplier 1 would be chosen clearly in this case as the services offered by that supplier match the best the buyer's priorities. These factors can also be rated with a scale from 1 to 5 but the risk of the set rates being inappropriate and insecure exists. When the factors are rated, they can be multiplied with the buyer's priority ranking. For closed questions the rates can be 0 for no and 1 for yes. The total of each factor are then summed which results in a quantitative result that is easy to compare. Besides this evaluation method, SupplierSelect lists the total cost of ownership, product features and environmental issues as determinants. Those determinants will be evaluated as major topics in the comparative study. (SupplierSelect, 2014)

2.7.3 Contract

Depending on the type of the desired supplier relationships there are two main types of contracts after the National Academy of Sciences. Companies that aim to build partnerships with their suppliers have generally inclusive contracts with their suppliers. Those contracts will likely involve price protection, contingency and utilisation of production capacity policies besides the general issues such as payment terms, lead-time frame, agreed services, price, MOQ. Less critical suppliers will likely have only the general part of the contract without too many specifications. The procurement is done for all suppliers generally through simple purchasing orders with the nature of one time purchase. Those contain information about the order volume, value and shipment terms. The purpose of all contracts is risk avoidance but in integrated supply chains it is likewise an effort of co-development which is why the objectives of the relationship are considered together with the supplier. (National Research Council Staff Committee on Supply Chain Staff Commission on Engineering Staff , 2000)

Contracts can be interpreted very differently in different parts of the world which means that they do not eliminate all risks. Arja Rankinen's research about cultural intelligence in business in South and East China brings up the different interpretations of contracts. Finnish business people commonly perceive the case as closed when the contract is made whereas their Chinese colleagues may expect the negotiations to continue even when a contract is made as in China negotiating, building relationships and gaining trust traditionally take a lot of time. (Rankinen, 2008) The previously mentioned emphasizes the openness of the communication at all times since it may help to prevent a lot of conflicts. Because of this the company should train its purchasers to be in contact with the suppliers both, before making orders and after receiving the ordered products which enhances the flow of feedback and information both ways. Open information will reduce surprises of non-stock issues among other things.

2.7.4 Supplier Relations Management (SRM)

To decide the SRM strategy for each supplier, companies use the categorisation model of suppliers together with the table 3: sourcing strategy matrix. This means that the suppliers are listed from the most important ones to less important ones which means usually in terms of value of purchased products and in the basis of the level of difficulty to source a certain product. Such model helps companies to optimise their time using at a general and neutral level especially if they have a large number of suppliers.

Tim Baines and Gwyn Kay discuss the importance of supplier relations in their article from 2002 from sourcing perspective. They have made a research based on UK companies' sourcing practices and conclude that the sourcing trend is developing towards more open and integrated relationships. Integrated supplier relationships (SR) helps to improve forecast accuracy and therefore it reduces the impact of bullwhip effect in the supply chain (SC).

Furthermore companies prefer to source from just few suppliers instead of hundreds of suppliers since it helps them to standardise and optimise other logistics costs. According to Baines and Kay choosing the sourcing practise is among the hardest strategic decisions as the choice needs to be argued well financially and marketwise. (Baines, et al., 2002)

The developed partnerships offer the opportunity to co-develop products with trusted suppliers and to optimise e.g. transportation and warehousing costs but the use of only few suppliers reduces negotiation power and increases the risk of non-deliveries in unexpected events.

2.8 Measurement of the process efficiency

As learned before, a successful sourcing strategy requires information from all departments of the company but also a high level of market intelligence. Many factors affecting the success of the process are changing, abstract or difficultly foreseeable. For this reason the study will study the hard data provided by the cost breakdown analysis and thus specify the key performance indicators (KPIs) related to the topic. As the proportions of companies' cost breakdown are not available, the study will concentrate more on comparing the effect of outsourcing on costs. The KPIs are linked to the company strategy and therefore are unlikely easier to generalise. Because of that each company should find their own KPIs and weight each indicator related to the importance of the firm strategy e.g. lowering costs or times. The conclusion and recommendations part will then put it together with softer data from the comparison.

When outsourcing manufacturing, the company can count together material costs, manufacturing process costs and assembly costs as all of those operations are to be completed by the OEM. Material cost includes both raw materials and semi-finished products are used in the production of the end product. Total product cost is relevant to the measurement because when the greatest expenses are known other problems are coming out also. For instance if there is a regular but unbudgeted cash flow going to the supplier or to working hours in SRM, the relationship may not be working as it should.

The manufacturing costs involve all costs related to manufacturing e.g. workforce, machinery, facilities etc. Assembly is also counted into manufacturing costs because this case assumes that the manufacturer delivers finished products. Assembly costs may become more expensive as it is commonly manual work especially if it requires also fitting and testing.

The reason why the manufacturing costs are variable and therefore relevant for our case is because of the different sub-categories of those costs that are the capacity costs and set-up costs. Capacity cost describes the operation, investment and maintenance cost. Set-up cost is the cost of changing the type of product in manufacture. For instance in dry food production, the machine has to be cleaned and reprogrammed in between the runs. For both costs the price becomes lower per product when the run-size becomes larger. To keep the costs in control manufacturers usually set a minimum order quantity (MOQ) that refers to the smallest reasonable quantity. The same usually applies to packaging and labelling with the difference that part of the packaging may be transferred closer to the customer, to the warehouses. Especially labelling is nowadays done at the very last point as the product descriptions need to be marked with the native language of the country of sales without exception.

According to Gleissner and Femerling Logistics costs include internal and external transport costs, order processing costs, warehouse capacity, stock and handling costs besides costs derived from controlling logistics and maintenance of warehouse management systems (WMS). These costs are a combination of fixed and variable costs but still rather predictable as long as the production is well planned. The comparative part will rationalise the impact of the supply chain structure on logistics costs but besides of the development level of the infrastructure the location of DCs along with the manufacturer location will add up a time factor with the nature of a cost. (Gleissner;ym., 2012)

Additionally taxes and customs duties are remarkable expenses that can be seen as part of the logistics costs. Customs and taxes are easily predictable but due to their prominence a lot of working hours is required to carry out the necessary planning. Other costs such as marketing and sales costs will be left out from the study because it is assumed those costs won't be affected by the outsourcing decision. The total cost of a product can be summarized = transportation cost + warehousing cost + HR + taxes, customs & insurances + production + risk. These are also the factors that are discussed in the comparative study from the different country perspectives.

3 Comparative study

Now that the literature review has given an insight to the topic and current situation, the comparative study will concentrate on finding the most important factors that affect the country choice through a country analysis. In the end the comparison also aims to identify a method that helps the evaluation of the opportunities and challenges and therefore also the decision making.

As discussed in the section 2.5 the most important OO locations are in Asia and Eastern European EU member states which is why I decided to have an example from both. The countries in the study are Taiwan, Estonia, the Netherlands and UK. The Western European countries are added in this study so that more diverse issues could be brought up. Taiwan is an interesting country as it has a high specialisation into the electronics sector. It also has a well developed OEM sector which is why it represents a traditional and low cost manufacturing location in Asia. The European part has more emphasis on Estonia as it is an important manufacturing and service sourcing location for many Finnish companies.

The Netherlands and UK will be discussed also due to different type of benefits provided by the import and export regulation or especially favourable logistics routing. All of the discussed countries still have a remarkable amount of OEMs which makes the research rational. The nature of the study is to identify the trade circumstances in each country. Again, if the scope of the research would permit, more issues would be considered and more deeply.

See Figure 5 for the assumed supply chains that are discussed in the study. China, being the largest producer of electronics according to Wilkes will be considered as the raw material producer for all OEMs of this study. (Wilkes, 2013)

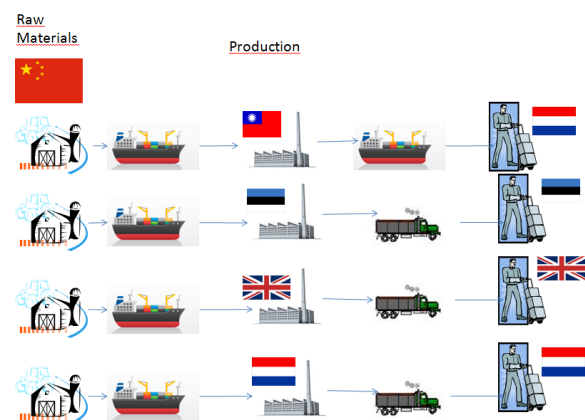


Figure 5: The supply chains as to the assumptions

It is necessary to determine the origin of the raw material producer as the logistics* costs are discussed also as an important issue. The import and export bureaucracy chapter will add an extra element as it will discuss the location of the distribution centre (DC)*.

The DCs location is assumed to be in the same country as the production is. The only exception is Taiwan and the DC is assumed to be in Rotterdam area because of the superior logistics connections and proximity to the customers. The customers are assumed to be in Europe but the logistics part discusses also the opportunities of enlarging the sales of the products to other areas as well.

The measurement part identified which factors of the cost breakdown affect the sourcing strategy of the company. This analysis will determine the contents of the comparison and the final conclusion will therefore be made largely on the basis of the findings aroused from the cost breakdown comparison.

3.1 Opportunities and benefits of the chosen countries

The idea of global outsourcing spread out fast because of the growing opportunities from new markets. This subsection will define the most important benefits offered by the chosen example countries: Taiwan, Estonia, and less widely the Netherlands and UK.

3.1.1 Taiwan

China is one of the biggest traders in the world together with EU which has resulted in EUs commitment of opening their interrelated trading. That has resulted in growing trade between the two even though there are still some concerns especially concerning the intellectual property rights issues according to the European Commission (European Commission, 2014). What is more, the growth of trade between EU and China has been growing steady within the ten past years and it is likely to keep growing.

Taiwan's best known strength is its manufacturing sector which has retained its competitiveness throughout the years. The biggest sector in the manufacturing is clearly electronics according to Taiwan Today. The investment of foreign companies creates a remarkable employment base to Taiwan. (Taiwan Today, 2013) Despite the rising prices of South China that were acknowledged already earlier in this study, Taiwan is still an increasingly convenient option for manufacture. HSBC global connections reported in June 2013 that Taiwan's government has launched new incentives on corporate taxation that should boost FDI. It is left to be seen if the government will reduce the tariffs also to attract more manufacture. (HSBC, 2013)

Due to Taiwan's long manufacturing experience and rising level of education they are likely to raise their level to competitive high-tech manufacturing also. Furthermore, HSBC tells that Taiwan is much more favourable for SMEs as the protection of the intellectual property is much stricter than in China. Even though the salaries are higher than in mainland China the level of automation is higher in Taiwan. This means that the manufacturing prices are quite similar to the ones in China. The higher level of automation in turn usually equals to more consistent quality.

3.1.2 EU

Finland and Estonia work closely in many fields from which trade and economic cooperation is remarkable. Whereas Estonia benefits from the Finnish direct investments which are nearly one quarter of all foreign direct investments (FDI), Finland benefits from the proximate location and lower cost production opportunities. This balanced relationship has set off the development of multi field cooperation for instance in taxation, e-regulation and other trade facilitating issues according to the Estonian Ministry of Foreign Affairs. (Estonian Ministry of Foreign Affairs, 2013)

Another reason for Finnish companies to choose Estonia for their manufacturing location is low entry barriers. Estonia is rated better than an average EU state in the effect of entry barriers for FDI. (Estonian Ministry of Foreign Affairs, 2013) In addition to the nonexistent entry barriers, Estonia's lower price level attires Finnish companies greatly. Saarinen compared in her thesis in 2011 manufacturing costs between Finland and Estonia. She concluded that production became less expensive in Estonia if more than one unit were produced; production costs, material, quality and reliability being measures. (Saarinen, 2011)

Due to the existing demand of contract manufacturers, Estonia has established a large base of e.g. electronics knowhow. Nowadays the electronics manufacturing is the fastest growing sector in Estonia and is successful enough to boost the whole Estonian Economy. (Ministry of Economic Affairs and Communications, 2014)

West-European countries such as the Netherlands and UK are potentially even more close to Finland culturally which helps the completion of business activities and maintenance of business relationships with low effort. Especially the Netherlands, the well-developed transportation hub has a relatively remarkable amount of contract manufacturers that have emerged due to Dutch companies' need of developing their processes because of the smallness of the home market. (Netherlands Foreign Investment Agency, 2013)

Whereas Taiwan and Estonia can very likely offer lower prices and flexibility on production volumes due to the competition of the manufacturing industry, the Netherlands and UK will offer consistent quality with low risks for stagnation of the production. Another benefit for the Western Europe is the central location, well developed infrastructure and extensive logistics networks that bring a huge opportunity when considering the distribution of the products. A central location of the distribution can shorten the lead times remarkably e.g. time of transportation alone can be shortened from 32 days to 5 days when reaching any country in the EU.

3.2 Import and export bureaucracy

This section discusses the import from the raw material producer to the manufacturing country but also the export from the manufacturing country to the actual supposed distribution centre. Even though the transport of the raw materials from the second tier suppliers to the manufacturer is not directly related, it should be considered in my opinion as the lead-times and value added tax (VAT) and therefore pricing may be affected greatly depending on the 1st tier supplier's strategic choices. As mentioned in 'the assumptions and limitations of the study' the raw material supplier is assumed to be in China.

Figure 6 Cost balance with manufacturing prices and import duties.

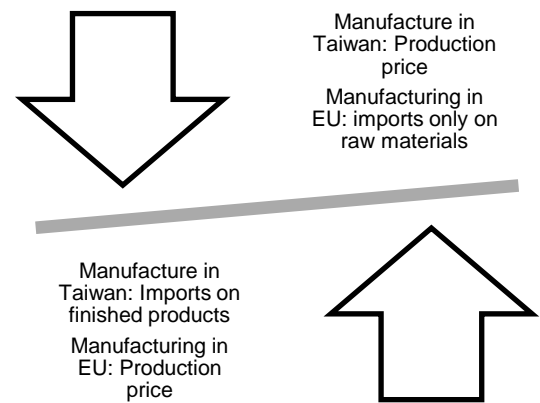


Figure 4 describes the balance with production prices and import duties. When goods are manufactured in Taiwan (the value is added) the relative import duties will be higher. When manufacturing in EU the import duty will be less because of the lower value of the traded material. This compensates the difference of the production prices.

3.2.1 Taiwan

Taiwan and China have their own trade regulations that are controlled mainly by China. Because of this the arrival of raw material imports via Ningbo port may sometimes take more time than the average of three days. The rapidness and efficiency of the administrative part may also be influenced on the relationships with the suppliers since the relationships will determine naturally the deals and the flexibility how the manufacturer will receive the raw materials. China and Taiwan still have some trade regulations which mean that the goods may be retained for inspection which increases the lead-time. The Chinese border is generally very strict on the imports both ways but the real problem deals with the lack of transparency in the customs procedures which equals to inconsistencies in different ports as to the European Commission (European Commission, 2008)

Taiwan's and mainland's relationship involves a lot of emotional complexities which were proven in mid-march when students invaded the Taiwanese parliament as an opposition to the new liberalising investment policies between the two as Asia Pacific reported. (Asia Pacific, 2014) EU has its interests to continuing with a strong economic link with Taiwan. Nonetheless if China will use force to keep Taiwan close, EU will likely back-up as it on the basis of its One China Policy. For a small or micro enterprise this might mean insecure supply of products.

Exports from Taiwan to EU are also screened carefully which means that if the manufacturer organises the transportation, it is important that certain requirements are identified also concerning the carrier. However the trend seems to be positive as China and Taiwan agreed on a cooperation framework which cut the tariffs from the trade of the two. (BBC News, 2010) A manufacturer with a little experience on international trade may be a problem if they do not know the process.

3.2.2 EU

Import and export bureaucracy for the trade from China to EU is straight forward as the customs duty, barriers and quotas are similar or same to all discussed countries. Furthermore as China is an important trading partner to EU (daily trade exceeds 1 billion according to European Commission), their interrelated trade functions well. (European Commission, 2014) This allows the small and microenterprises to rely on secure supply if the manufacturer is proven to have reliable raw materials suppliers.

For instance the Rotterdam port is the busiest port of Europe but UK has exceptionally well-functioning relations towards US. Whereas Estonia and Finland have their own agreements that help companies to avoid double taxation, the Netherlands offers the opportunity of avoiding the double taxation for all transiting goods.

3.3 Logistics costs

Not only the sources of the raw materials affect the manufacturing location but also the distribution structure and markets set their own requirements and preferences. As in each case scenario all the companies have quite similar transportation routing by sea the price of oil won't be playing a major role when considering the choice. Also the transit times are 35-40 days in total from the raw material producer to the end customer (see table 6 for breakdown). Only if there are a lot of delays in the production and products need to get fast to the end customer alternative transportation modes might be necessary to use from the manufacturer to the DCs. This means that sending the products as airfreight from Taiwan will raise the costs of transportation significantly. On this basis time should also be considered as an extra cost.

Table 5: Transit times at each stage. Estimations based on the transit time calculator: SeaRates.com (SeaRates, 2014)

MANUFACTURE LOCATION	FROM MATERIAL SUPPLIER TO RAW TO MANUFACTURER	FROM MANUFACTURE R TO DC	FROM DC TO CUSTOMERS IN ANYWHERE EUROPE	TOTAL	LEAD TIME FOR BUYER
Taiwan	1 ½ days	30 days	Maximum 5 days	36.5 d	35
Estonia	33 days	2 days	Maximum 5 days	40 d	7
the NL	31 days	½ day	Maximum 5 days	36.5d	5.5
UK	30 days	½ day	Maximum 5 days	35.5d	5.5

Even though the finished products are sold as they are the packaging and labelling may vary in different markets. Depending on the company, it may choose to use a sticker label, unique for each country or to have unique packaging for each country. Regardless of the chosen method, the packaging requires accurate demand forecasting for each market. If the company aims to keep the production as lean as possible it will likely transfer these operations to be done in the DC just before sending them out. The reverse of this is that the value of manual work is higher in the DCs which are located in Western Europe. In conclusion the company needs to balance with the accuracy of forecasting, desired customer service level* and the rate of the manual work.

As an important remark, these logistics costs are not necessarily relevant as they depend also on the contract made with the manufacturer. However they are discussed because they may have an effect on the price of the product.

3.3.1 Flexibility of production

The level of automation determines flexibility of changing the size of production batches which is important to small companies. If small companies operate with manufacturers with high level of automation, very likely they need to invest in large stocks as the production capacity of the automated machinery is so high that the startup costs to turn on the machinery becomes irrelatively high in comparison to the

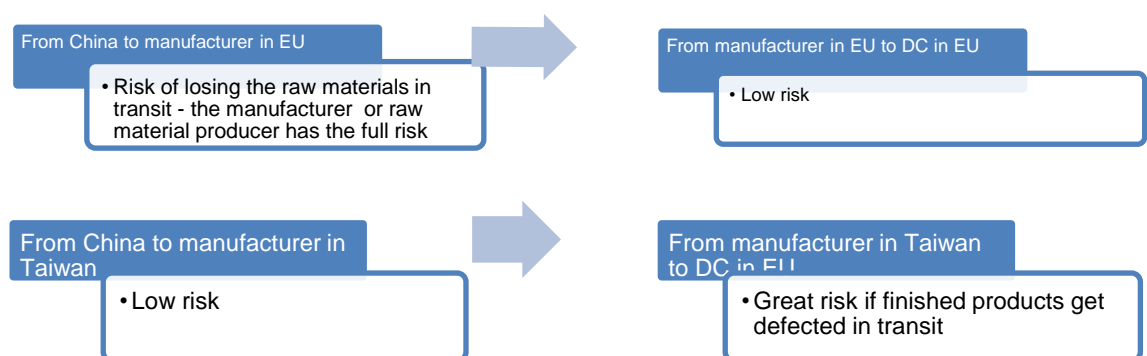
price of keeping the machinery on. A high level of automation also makes production lead times more accurate. Logically, as the salary level is multiple in Western Europe to Taiwan, also the level of automation is higher due to retaining the production profitable and reasonable pricing. Because of the flexibility of production volumes is more flexible in Taiwan, it may be a more suitable option for micro and small enterprises.

3.3.2 Taiwan

As argued, the sizes of the production batches and the MOQs are more flexible in Asia. As apt as a small MOQ is for microenterprises also this logistics issue requires balancing with the production and transportation costs. For instance transporting a full 40ft container load will be less expensive vis-à-vis to a half container load which means that a microenterprise may want to revise their mean stock levels if the transportation costs rise too high. This naturally depends on the holding cost* as well. The time factor in turn can be seen in table 1's last column where the transit time for shipping the products from the manufacturer to the end customer is estimated. Logically Taiwan has the longest transit times which may be a problem if

Table 2 show the emphasis of the risk during transportation. The risk of losing more in value is realised when finished products are transported from Taiwan to the microenterprise's DC or warehouse. Again the contract will determine the responsibility of the goods via the agreed Incoterms*.

Table 6: Risk during transportation



3.3.3 EU

Geographically the Netherlands and UK offer particularly good logistics networks. This means that the transit times towards the end customer are notably shorter than when transporting from Taiwan.

Because of the higher salary level the production should be as automated as possible.

This equals to large batches of raw materials being shipped which is optimal for the transportation cost but has an opposite effect on the warehouse holding cost. Even though these costs would be in balance, the real problem is in the seasonality of the products (See figure 7: Source, The geography of transport systems, URL:

<http://people.hofstra.edu/geotrans/eng/ch5en/conc5en/tlc.html> [24th March 2014]).

If the demand varies a lot, high stock levels may lead into large deficit creating large unexpected increases in costs.

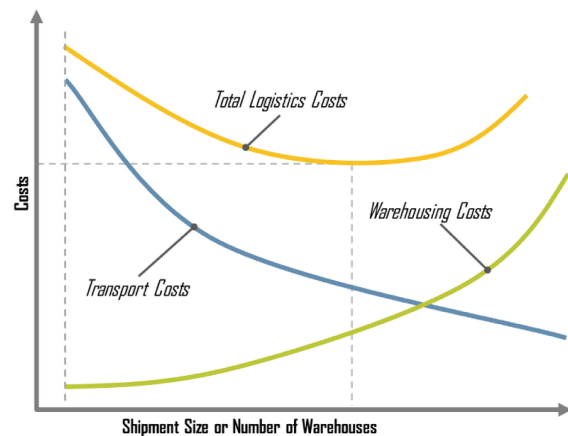


Figure 7: Total logistics cost is a balance of transportation and warehousing cost

3.4 Other Factors

This chapter discusses other smaller factors that still affect the choice. Those factors are countless which results limiting this part as a general overview.

3.4.1 Quality

Country of origin is tied to the quality perception of the product according to Samli which brings up an important issue concerning consumer behaviour. As this paper is concentrated on supply chains it will leave out the distribution, sales and marketing. Anyhow consumer behaviour is likely weighed carefully when making the strategic choice of the manufacturing location. Concerning electronics Germany and Finland would be the most trusted manufacturing locations in terms of quality and China (also Taiwan) and newer electronics producing countries would be less favoured. (Samli, 2013)

Quality is about how well the product meets the end users expectations which is why the buying organisations have to define accurately the wanted characteristics for the product. Besides the buyer needs to define the acceptable defect rate and maximum delays for the production among other things. Inclusive negotiations about previously mentioned issues will likely reduce the amount of unexpected problems or at least offer a fast, predetermined solution when they occur. The quality control becomes also the harder the further the company is which may require sourcing for an external local auditor. But that also has its own challenges and costs that are left out from this study.

3.4.2 Cooperation and culture

Contract and SRM subtitle dealt with the sourcing categories but production is seen as critical which means that the buyer and the supplier needs to commit into cooperation and self-development. For the buying organisation it means constructing educated specifications with their producers and open communication. As surprise to the buyer the necessary time for maintaining this relationship may be very timely. In other words, even though the buying company saves in production workforce, it may require more people to SRM activities. Naturally the amount of that time depends on how similarly the contract and specifications are understood in the buying and selling organisations.

The contradiction of different interpretations is emphasized when the cultures of the organisations are different. For instance if the buyer and the supplier have negotiated about the acceptable defect rate in Taiwan and Estonia, it is very likely that the culturally similar companies (Finnish and Estonian) will respect the outcome of the negotiation. However, Rankinen explained that when operating in south China, negotiations and even contracts are perceived as short term and the long term agreements are built only through a common cooperation and shared experiences. (Rankinen, 2008) This should be interpreted so that the negotiations are on-going and therefore require a lot more time than a negotiation with a western company. Nevertheless, it depends also on the internal culture of the two companies which means that companies with highly international culture and experience may never face such problems.

The difference of the cultures may also bring challenges for the perception of time and therefore to the predictability of the set schedules. The substance of these challenges solidifies in the emerged costs on extra working hours in the operational planning and in the lowered CSL. Corruption may also be a big influencer of the sourcing decision but it will be left out because of the large extent of the topic.

3.5 Conclusion of the chapter

To clarify the findings of the comparative study, the acquired data is collected to the table below. In order to transfer the data into a more digestible form simple +/- signs are used for most parts. The + sign will signify a positive effect whereas - sign can be interpreted as a negative effect. The maximum rate is three + signs and the minimum is one minus.

Table 7: A summary of the chapter's most important factors

RELATIONSHIP TO FINLAND	COUNTRY	ESTONIA	THE NETHERLANDS AND UK	TAIWAN
	Factor			
Opportunities	Access to Asian Raw Materials	+	++	+++
	Access to Finnish market from manufacturer	+++	++	-
	Access to DC from manufacturer	++	+++	+
	Access from DC to Finnish market	+++	++	++
Import & Export bureaucracy	The costs of VAT and customs	+++	+++	-
Operations Management	Experience of the manufacturing sector	+(+)	+	+++
	Flexibility of production	++	-	+++
	Price of production	+	-	+++
	Production lead-time	++(+)	+++	++

RELATIONSHIP TO FINLAND	COUNTRY	ESTONIA	THE NETHERLANDS AND UK	TAIWAN
	Factor			
Logistics costs	Price	+++	++	-
	Time factor	++	+++	-
	Risk factor	++	++	-
	Logistics networks	+++	+++	+++
Other factors	Quality, potential	++	+	+++
	Consistency of quality	++	+++	+
	Timeliness of relations management	+++	+++	-
	Costs of different culture	+++	+++	-

The purpose of this comparative study and the table above is to demonstrate how qualitative data can be summarised and furthermore processed more workable data. The context of the study was electronics industry as the data was easily retrievable for that sector. As seen, most of the data is abstract and therefore hard to rate but when applying this table tool to an individual company the effect of different factors become more sharp and accurate. The generalised nature of the table 8 allows companies to modify it to their own purposes. A lot of factors can and should be included to this table to have a reliable evaluation. This table should also encourage small and microenterprises to use increasingly cross-organisational information which could mean for instance the effect of changing the supplier on the brand. Another issue is the presentation of the trade-offs that were present especially in logistics part.

When willing to use this tool a company should start by determining its own priorities and studying the potential countries. At this point the potential countries may be all that have sufficient range of suppliers or simply those countries with who the company has contacts.

When the company has acquired sufficient data it should construct a list of the most important factors i.e. the factors that are presented in the second column from the left. The list offers an excellent framework for quantitative judgement that is similar to the judgement of the rating-weighting system of RFQ's (presented in sourcing steps, chapter 2.7.1) This means using a scale from 0 to 3 instead of the minus and plus symbols for grading the factors of each company.

Since the table lists a large variety of different factors the ranking system won't generate realistic results. In order to make the results more realistic and to obtain a greater match with the sourcing strategy and company strategy, the factors should be rated (see table 8, right column, for example). Hence, a scale from 1 to 5 would be more suitable for the different factors.

Table 8: A recommendation how the rating table works in practice

Factor	Estonia Grade	Estonia Weighed	NL Grade	NL Weighed	Taiwan Grade	Taiwan Weighed	Importance / multiplier
Access to Asian Raw Materials	1	$1*2=2$	2	$2*2=4$	3	$3*2=6$	2
Access to Finnish market from manufacturer	3	$3*1=3$	2	$2*1=2$	0	$0*1=0$	1
...							
Total	5		6		6		

Judgement of the received results is done exactly as the same as the evaluation of the RFQ's which means that the two scales are multiplied and finally totalled. The sums for each country are then comparable with each other quantitatively. The more factors are included in the table the more likely the total scores will vary.

After using this table tool the company should have an idea of which countries are the most apt ones for cooperation. When starting the sourcing process from the chosen country, more updates may be still made to the table. If the updates make the score even more strong, the country decision is likely correct. However if the updates worsen the score, it may be sensible to reconsider the second best option again. Thus the tool makes it possible to revise, update and check the decisions easily whenever.

4 Conclusion and alternative method for measurement

As the profitability of the outsourcing attempt depends so largely on many different factors and can be measured with a large variety of indicators the study will not provide theoretic models of how companies should choose but to how to make decisions. Considering the goal and scope of the thesis, this conclusion is sufficient and well argued. The final chapter will conclude how a small company can make large strategic decisions without too much effort and moreover without too many negative surprises when the outsourced activities becomes part of the daily operations. After all, the smaller the company is the less it has employees for procurement, operations and logistics which means that a simplified guideline for small and microenterprises is vital to help strategic decision making.

One of the most important learning of the study is well known in logistics and is about the endless trade-offs. As the trade-offs make also an outsourcing attempt infinitely possible to optimise. In practise small and microenterprises have a limited amount of employees managing these outsourcing relationships and often the pressure from the company owners and scarce cash flows force them to save in costs without thinking about the company strategy and vision. Because of this the nature of the outsourcing attempt can change easily from establishing a long-term relationship with long-term cost cuts to fast corrective actions and purchases with short term financial gain.

Because of this companies need a framework on how to make these decisions effectively. This part of the study concentrates in concluding the substance of the literature and comparative study. The current trends part demonstrated how the industries are changing their strategies along the changing customer requirements. Increased demand for flexibility pressures companies to enhance their logistics networks and therefore also their supplier relations. The management of the complex and largely variable issues requires a strategy that will be provided next. Implementation of the strategy is naturally followed by a well thought decision about starting an outsourcing attempt with the help of Vagadia's matrix for instance (page 6). Depending on the outsourced activity an ABC analysis together with an analysis of the sourcing strategy table (table 3) which will help them to identify the most important issues and operating plan for the next stages.

Once the outsourcing decision is made and accepted at the management level the country analysis is the next step. When justifying the country decision the transformation of the qualitative factors into quantitative ones would be a clear benefit. Table 8, see previous chapter, helps at this stage as it is modifiable to companies' purposes in different industries and geographic locations. Rating of the qualitative characteristics is highly uncertain which means that a margin of error exists. To reduce the effectiveness of this table as a measurement tool, it is important to use as many quantitative measures as possible. Those quantitative measures mean at this early stage index prices of raw materials, transportation and labour but also the length of lead times among other things.

The sourcing process follows the country choice, more or less, as presented in subchapter 2.7. For the selection of the supplier the neutrality is the most important factor which is why the rating and weighing of the RFQ's becomes crucial (page 13). Again the transformation of the qualitative factors into quantitative is the key which makes the method more reliable and credible when presented to the top management. To minimise the margin of error caused by human errors in the rating of the factors, the buyer should intend to use the same scale for each potential supplier. This reduces the impact of falsely estimated rates. The priority rates will help to reduce the impact of false judgements. Whenever facing insurmountable problems in the process, the solution is to go one step back according. This may mean starting to source from more than one country if the most optimal sourcing location does not provide adequate suppliers.

Naturally strategic decisions are much more complex as presented in this study because each decision may bring a new outcome which makes it impossible to follow the strategy. However the study still provides an eye-opening learning experience about different circumstances in EU and Taiwan. This comparison was the basis for the conclusive table 8 that provides a new type of measurement tool for comparison as it summarises the theoretic research with an opportunity to measure it quantitatively. In the very end, besides of being a learning project for me this study aimed to find a way that eases off a small or microenterprises outsourcing project.

5 Epilogue

This study started from a personal interest and willingness to find out whether offshore outsourcing activities could be replaced by near shoring and on-shoring. Soon after starting the reality hit my face by revealing the complexity of retrieving the necessary data from companies. In the end, I realised that this was a benefit as now I had the opportunity of researching and acquiring a comprehensive understanding of the outsourcing phenomenon from sourcing perspective. Such understanding allowed me to consider how to enhance and improve the quality of outsourcing attempts. Therefore I am proud to present my findings to any reader who bothers to skim or peruse this piece of work.

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Appendix 1: Terminology

Bottleneck producer is the producer with longest lead-time to produce a component or product. If parts of the products are manufactured coincidentally, the production process is dependent on the production time required by the bottleneck producer.

Bull whip effect emerges in supply chains in which the suppliers at each level need to anticipate in greater stocks because of the unpredictability of demand. Because of this the raw material supplier may have a multiple stock size compared to the final B2C customer's actual demand.

Containerisation means shipping goods in containers with standard size and suitable intermodal transportation according to Rama Gopal in Export Import Procedures. (Gopal, 2008 s. 198) Intermodal transportation means that same containers can be moved easily between trucks, trains and ships.

Customer Service Level (CSL) is used to reflect the percentage of the fulfilled orders from the stock. $CSL = \text{orders fulfilled from the stock} / \text{total quantity of orders}$.

Demand planning is about forecasting future sales in long-term and predicting how the future should be.

Distribution centre is a short term warehouse which is designed so that goods come in and go out quickly. It is designed to help **cross docking** in distribution which is unloading the goods from the pallets or containers and loading them back into new ones according to the incoming orders.

Holding cost involves the cost of storing them which is why it represents also the opportunity cost as the goods are not yet sold but stored, handling and the costs of products getting defected along time.

Incoterms are trade terms that are used especially in international trading contracts. These terms were created by International Chamber of Commerce (ICC) and they provide a tool of determining the liability of the traded goods at different stages.

JIT management philosophy emerged in Japan and strives for precise timing and production quantity with the help of accurate sales forecasting and inventory management systems and. (Lai, 2009)

Lead time is the time from the order being made until the product reaches the customer.

Lean production, Business dictionary defines the term as eliminating 'the waste' (non-value adding), activities from the operations and thus streamlining the production. (BusinessDictionary.com), *Lean Manufacturing*, URL: <http://www.businessdictionary.com/definition/lean-manufacturing.html> [23th Feb. 2014]

Logistics aims to channel the right product in right quantity to the right place at right time with a cost balance.

PESTLE analysis is used for the evaluation of the external environment of an organisation. PESTLE itself is an acronym that signifies the political, economic, social, technological, legal and environmental factors.

Small & Micro enterprises, The European Commission define company sizes by the headcount and turnover. Microenterprise employs fewer than 10 persons and the turnover is less than 2 million Euros per year. A small company employs less than 50 persons and the turnover is lower than 10 million Euros. (Liikanen, 2003)

Supply Chain links all the companies that participate in a products life from the raw material producer to the end customer. Supply chain management is about streamlining the cooperation and operations of these companies so that all the related companies receive maximum value and add value to the end customer.

Appendix 2: 'Bestshoring' Beats outsourcing

By Hillary Rodham Clinton

Updated July 26, 2004 12:01 a.m. ET

You can't turn on the news without hearing about offshore outsourcing -- the shipping of jobs overseas to take advantage of lower wages. This trend has spread widespread fear among working families around the country. Although these fears are legitimate, I believe that the savings from such outsourcing are exaggerated and that America is more competitive than most realize.

That's why New Jobs for New York, a non-profit corporation focused on economic development, commissioned a study by Howard Rubin to explore the real facts on outsourcing. He found that next year, nine out of the 10 largest firms in New York are predicted to perform IT or business process work offshore. The primary reason given by 90% of these firms is "cost savings." So he analyzed these savings by category.

It turns out that the savings from outsourcing were not as large as many employers believe. While they cited average savings of 44% per outsourced job, Prof. Rubin demonstrates that the actual figure approximates 20%. Lower wages are only one part of the offshore equation. When you tabulate *all* the costs, our nation is more competitive than employers think.

You're probably asking, "How can we compete against countries where a computer programmer's wages are \$10,000 per year while the equivalent U.S. wage is \$100,000?" The explanation is that additional costs must be added to the offshore wages themselves to get the complete picture on costs. Companies have to spend money for planning, offshore transition, vendor selection, technology, communications, offshore management, travel and security. Many employers do not take every one of these costs into consideration. Add up all the costs and suddenly a call-center worker with a raw wage of \$5 an hour offshore has a true cost of \$17. And that's why we have the potential to be competitive.

But to realize that potential we need a strategy that focuses on critical areas -- innovation, new job creation, workforce development, connectivity expansion, and collaboration between industry, academia, labor and government. We have to equip businesses and workers to become even more competitive, further develop the digital economy, and work to end trade and tax practices which undermine competitiveness.

First, what helps us most against offshoring is our leadership in innovation. To maintain our advantage, we need a national agenda that promotes research through tax credits and further

direct investments in science. We should provide new tax incentives for jobs, and eliminate perverse ones which actually reward businesses for sending jobs offshore. That's why I have co-sponsored legislation to create a 10% tax cut for manufacturers, and to close loopholes for companies that move HQs abroad solely to avoid taxes. And John Kerry has proposed an overhaul of the corporate tax system to eliminate the so-called deferral advantage which rewards foreign profits at the expense of domestic profits.

We also must help our workers to adapt. This means attracting more people into the science, math, engineering and tech disciplines through grants to universities and special loan programs to students. We cannot afford to fall behind India and China, who graduate far larger numbers of scientists and engineers. The Trade Adjustment Assistance Program, which provides wage assistance and retraining only to manufacturing workers who have lost jobs due to trade, should be expanded to include computer programmers, call-center workers, and other service jobs.

We also need a national broadband policy. It is inexcusable that the U.S. ranks 11th globally in broadband penetration per household. I have introduced legislation to enhance access for rural and underserved areas that would accelerate the transformation to a digital economy.

Finally, we need the kind of collaborations that have helped make India, Ireland and others magnets for offshoring. Those countries have partnerships with their businesses that help new industries get necessary support. Such programs have proven effective regionally in the U.S. and are already underway in New York through the creation of business incubators. At the national level, we should support critical new industries like alternative energy, which hold the promise of millions of new jobs.

Where do we have the talent, resources, and cost structure coming together to enable us to compete? The answer is regions like Upstate New York, with unmatched educational and research institutions; proximity to the financial center of the world; and a talented, educated workforce. It also has a high quality of life, and with the recent expansion of discount carriers, it's a lot cheaper to fly inside America than any flight you'd find from New York to New Delhi.

With a smarter national strategy and better information on *real* costs, many companies would rethink offshore sourcing. The choice they would make might be described as "bestshoring." It would keep more good paying jobs in America and replace the ones we have lost with even better ones.

Ms. Clinton is a Democratic senator from New York.